Air Quality Permitting
Statement of Basis

July 12, 2006

Permit to Construct No. P-060119

Lignetics
Kootenai, ID

Facility ID No. 017-00029

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AIR QUALITY DIVISION

Public Comment

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Acronyms, Units, and Chemical Nomenclatures

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EPA	U.S. Environmental Protection Agency
gr	grain (1 lb = 7,000 grains)
HAPs	Hazardous Air Pollutants
hp	horsepower
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/hr	pound per hour
m	meter(s)
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
NOx	nitrogen oxides
NSPS	New Source Performance Standards
O_3	ozone
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	Synthetic Minor
SO_2	sulfur dioxide
T/yr	tons per year
$\mu g/m^3$	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

Lignetics is a sawdust and shavings pelletizing plant. The facility processes sawdust and shavings from lumber mills into wood pellets and presto logs. The sawdust and shavings is dried in a drum dryer heated by wood, natural gas, Number 2 fuel oil or used-oil derived fuel. The dried sawdust and shavings are pneumatically conveyed to a hammermill and pellet mill. A portion of the dried sawdust is conveyed to a material grinder which grinds the sawdust prior to burning in the wood-fired burner.

3. FACILITY / AREA CLASSIFICATION

The facility is classified as a synthetic minor facility because the potential to emit is limited to less than major source thresholds . The AIRS classification is "SM".

The facility is located within AQCR 63 and UTM zone 11 The facility is located within Bonner County, which is classified as attainment or unclassifiable for all criteria air pollutants except for PM_{10}. The Sandpoint area within Bonner County is classified as a moderate nonattainment area for PM_{10}.

The AIRS information provided in Appendix A defines the classification for each regulated air pollutant at the facility. This required information is entered into the EPA AIRs database.

4. APPLICATION SCOPE

The facility has proposed to install a new dryer line which will replace their existing dryer line, and consists of a new wood-fired burner, a new rotary drum, their existing natural gas/oil-fired burner as well as substantial amounts of existing ducting and miscellaneous equipment. The facility has also proposed to install a supplemental wood fuel grinder, replacement multiclone, ID fan, and stack.

4.1 Application Chronology

May 18, 2006	DEQ received application.
June 14, 2006	DEQ determined application complete.

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.:

5.1 Equipment Listing

Wood-fired Burner
Rotary Dryer
Material Grinder
Primary Cyclone
Multiclone

5.2 Emissions Inventory

Table 5.1 summarizes NO_X, VOC, CO, PM_{10} and SO_2 emissions resulting from the proposed project. TAP emissions have been included in Appendix B

Table 5.1 Criteria Pollutant Emission Estimates

Pollutant	Emission Rate	
	lb/hr	T/yr
NO_X	9.6	42
VOC		74.2
CO	15	66
PM_{10}	15.7	44.1
SO_2	14.91	65.3

5.3 Modeling

Predicted SO_2 concentrations exceeded the 25 µg/m^3 significant contribution level, and triggered facility-wide modeling assessment. However, since the dryer is the only source of SO_2 emissions, no further analysis of SO_2 was necessary. PM_{10} emissions were modeled as required by the NAA. A DEQ review of the submitted modeling analysis determined that PM_{10} concentrations would not exceed the 24hr or annual significant contribution level. A summary of the modeling results is given in Table 5.2. Table 5.3 contains a list of TAPs whose emissions estimates exceeded ELs and required modeling. Please note that the facility was required to modeling TAP emissions resulting from the fuel change and from the combustion of fuels currently permitted because of possible changes in stack parameters.

Based on the information submitted, the facility has demonstrated to the satisfaction of DEQ that criteria air pollutant and TAP emissions will not cause or contribute to a violation of any applicable ambient air quality standard and acceptable ambient concentration, respectively.

Table 5.2 Criteria Pollutant Concentrations

Pollutant	Averaging Period	Facility Impact (µg/m^3)	Background Concentration (µg/m^3)	Total (µg/m^3)	Percent of NAAQS
NO_2	Annual	9.49	32	41.5	41.5

Table 5.3 Toxic Pollutant Concentrations

Noncarcinogens	Averaging Period	Concentration (µg/m^3)	AAC (µg/m^3)	Percent of AAC
Acrolein	24-HR	0.20191	12.5	1.62
Acid Mist	24-HR	0.3633	50	0.73
Chlorine	24-HR	0.44785	150	0.30
Phosphorous	24-HR	0.00241	5	0.05
Propionaldehyde	24-HR	0.14358	21.5	0.67
Carcinogens	**Averaging Period**	**Concentration (µg/m^3)**	**AACC (µg/m^3)**	**Percent of AACC**
Acetaldehyde	Annual	0.08238	4.50E-01	18.31
Arsenic	Annual	1.00E-05	2.3E-04	4.35
Benzene	Annual	5.54E-03	1.20E-01	4.62
Benzo(a)pyrene	Annual	<1.00E-05	3.0E-04	<3.33
Beryllium	Annual	<1.00E-05	4.2E-03	<0.24
Cadmium	Annual	1.00E-05	5.6E-04	1.79
Chromium VI	Annual	<1.00E-05	8.3E-05	<12.05
Formaldehyde	Annual	8.0E-04	7.7E-02	1.04
Methylene Chloride	Annual	1.29E-02	2.40E-01	5.38
Nickel	Annual	0.00002	4.2E-03	0.48
PAH	Annual	0.00001	1.4E-02	0.07

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201.....Permit to Construct Required

The facility's proposed project does not meet the permit to construct exemption criteria contained in Sections 220 through 223 of the Rules. Therefore, a PTC is required.

IDAPA 58.01.01.203.....Permit Requirements for New and Modified Stationary Sources

The applicant has shown to the satisfaction of DEQ that the facility will comply with all applicable emissions standards, ambient air quality standards, and toxic increments.

IDAPA 58.01.01.210.....Demonstration of Preconstruction Compliance with Toxic Standards

The applicant has demonstrated preconstruction compliance for all TAPs identified in the permit application.

IDAPA 58.01.01.224.....Permit to Construct Application Fee

The applicant satisfied the PTC application fee requirement by submitting a fee of $1,000.00 at the time the original application was submitted, September 1, 2005.

IDAPA 58.01.01.225.....Permit to Construct Processing Fee

The total emissions from the proposed new facility are between 10 and 100 T/yr; therefore, the associated processing fee is $5,000.00. No permit to construct can be issued without first paying the required processing fee.

5.5 Permit Conditions Review

This section describes only those permit conditions that have been revised, modified or deleted as a result of this permit action. All other permit conditions remain unchanged.

The process description has been revised to reflect the installation of the wood burner, wood dryer and material grinder. The process description has also been changed to reflect that a portion of the dried material is pneumatically conveyed to the material grinder which grinds it into dust for burning in the wood burner.

The emission control description has been revised to reflect that the particulate emissions from the drum dryer are controlled by a new multiclone. The emission control description has also been revised to reflect that the emissions from the wood burner dryer are vented to the drum dryer.

Permit Condition 2.3 and Table 2.2 have been revised to reflect new NO_X emission limits for the dryer stack.

Permit Conditions 2.3.1 through 2.33 have been renumbered to Permit Conditions 2.4 through 2.34.

Permit Condition 2.4 has been incorporated into Permit Condition 2.3.

Existing Permit Condition 2.8 has been renumbered to Permit Condition 2.12, and revised to allow for the use of wood as fuel.

Permit Condition 2.16 contains the monitoring and recordkeeping requirements that assure that facility does not exceed the arsenic, chromium, and nickel emission limits in Permit Conditions 2.4 through 2.7. and assure compliance with AACC & AAC values while burning either No. 2 fuel oil, or the fuel mixture of No. 2 fuel oil and residual fuel oil. For additional information, please refers to Section 7.2 of the technical memorandum for the April 18, 2003 PTC for additional details.

Existing Permit Condition 2.10 has been renumbered to Permit Condition 2.15, and revised to state that the sulfur content in the No. 2 fuel oil supplied to the dryer shall not exceed 0.5% by weight. This requirement has been added to clarify that the sulfur emission estimates for the April 18, 2003 PTC are based on 0.5% by weight sulfur content, and not 1.75% given in IDAPA 58.01.01.727.02.

Permit Condition 2.18 was established in the April 18, 2003 PTC to assure that the analysis methods used are adequate enough to measure to those concentrations of the pollutants listed. Please note, however, that the requirements of 40 CFR 279.11 are applicable requirements, but were not placed within the permit because the imposed concentrations needed to meet the AACC are more stringent than those in 40 CFR 279.11.

Existing Permit Condition 2.13 has been renumbered to Permit Condition 2.19, and revised to state the dryer's wood-fired burner shall not have a rated input capacity of greater than 45 MMBtu/hr. Permit Condition 2.17 has also been revised by removing the language that states that the permittee may combust natural gas in the wood-fired burner only to preheat the burner. Permit Condition 2.17 has also been revised by removing the language "Steam shall be used to atomize used- oil-derived fuel..." in order to allow the facility operational flexibility.

Existing Permit Condition 2.15 has been renumbered to Permit Condition 2.21, and revised to state "shall not exceed 1,200° F". In order to address visible emissions concerns received from the Coeur d'Alene Regional office, the language "for more than three minutes in any 60-minute period" has been removed.

Existing Permit Condition 2.22 has been revised, and its requirements are now contained in Permit Conditions 2.27 and 2.28. Permit Condition 2.22 now contains the fugitive dust requirements of IDAPA 58.01.01.650-651. Permit Conditions 2.26 and 2.27 contain the monitoring requirements necessary to demonstrate compliance with Permit Conditions 2.12, 2.13, and 2.15 through 2.17. Permit Condition 2.28 contains the monitoring requirements necessary to demonstrate compliance with Permit Condition 2.21.

6. PERMIT FEES

Table 6.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	23	0	23
SO_2	0.0	0	0.0
CO	0.0	0	0.0
PM_{10}	0.0	0	0.0
VOC	0.0	0	0.0
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	**23.0**
Fee Due	**$ 5,000.00**		

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

The draft permit was made available for regional office review on July 14, 2006. Comments were received on August 17, 2006, and processed.

7.1 Facility Review of Draft Permit

The draft permit was made available for facility review on July 26, 2006. Comments were received on August 30, 2006, and processed.

7.2 Public Comment

An opportunity for public comment period on the PTC application shall be provided in accordance with IDAPA 58.01.01.209.01.c.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommend that Lignetics Inc. be issued PTC No. 060119 for public comment and review for the new dryer line project. The project does not involve PSD requirements.

ABC/bf Permit No. P- 060119

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Appendix A

AIRS Information

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AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: Lignetics Inc.
Facility Location: Kootenai, Idaho
AIRS Number: 017-00029

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							U
NO_x	B							U
CO	SM						SM	U
PM_{10}	SM						SM	N
PT (Particulate)	SM						SM	U
VOC	SM						SM	U
THAP (Total HAPs)	B							U
			APPLICABLE SUBPART					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, **or** each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix B

Emissions Inventory

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ROTARY DRYER HEATED BY WOOD-FIRED BURNER

Emission Calculations

Operations

Maximum Heat Input (MMBtu/hr)	Maximum Dried Product Throughput (lb/hr)	Maximum Dried Product Throughput (ODT/hr)	Maximum Airflow dscfm
45	33,101	16.6	35,380

ODT = oven dried ton

Maximum Dried Product Throughput and Maximum Airflow derived from 10-24-05 Process Flow Diagram developed by The Onix Corporation.

Emission Factors

Pollutant	CAS Number	Emission Factor	Note
PM	-	-	a
PM10	-	-	a
SO2	-	0.025 lb/MMBtu	b
NOx	-	0.58 lb/ODT	c
CO	-	0.68 lb/ODT	c
VOC	-	0.90 lb/ODT	d
1,1,1-Trichloroethane	71-55-6	1.20E-05 lb/ODT	d
Acetaldehyde	75-07-0	1.30E-02 lb/ODT	d
Acetone	67-64-1	8.40E-02 lb/ODT	d
Acrolein	107-02-8	4.50E-03 lb/ODT	d
Benzene	71-43-2	9.90E-04 lb/ODT	d
Biphenyl	92-52-4	3.90E-05 lb/ODT	d
Bis-(2-ethylhexyl phthalate)	117-81-7	3.20E-04 lb/ODT	d
Bromomethane	74-83-9	2.80E-05 lb/ODT	d
Carbon Disulfide	75-15-0	1.80E-05 lb/ODT	d
Carbon Tetrachloride	56-23-5	1.20E-05 lb/ODT	d
Chloromethane	74-87-3	1.10E-04 lb/ODT	d
Cumene	98-82-8	6.90E-05 lb/ODT	d
Di-N-butyl Phthalate	84-74-2	2.30E-05 lb/ODT	d
Ethyl Benzene	100-41-4	3.80E-06 lb/ODT	d
Formaldehyde	50-00-0	2.50E-02 lb/ODT	d
Hydroquinone	123-31-9	6.00E-05 lb/ODT	d
m-,p-Xylene	1330-20-7	5.50E-04 lb/ODT	d
Methanol	67-56-1	1.40E-02 lb/ODT	d
Methyl Ethyl Ketone	78-93-3	4.90E-03 lb/ODT	d
Methyl Isobutyl Ketone	108-10-1	2.40E-03 lb/ODT	d
Methylene Chloride	75-09-2	6.30E-04 lb/ODT	d
n-Hexane	110-54-3	2.60E-05 lb/ODT	d
o-Xylene	95-47-6	1.40E-05 lb/ODT	d
Phenol	108-95-2	6.60E-03 lb/ODT	d
Propionaldehyde	123-38-6	3.20E-03 lb/ODT	d
Styrene	100-42-5	1.20E-04 lb/ODT	d
Toluene	108-88-3	2.10E-03 lb/ODT	d
Valeraldehyde	110-62-3	1.60E-03 lb/ODT	d

a - Based on Onix Particule Control Guarantee. See PM/PM10 calculations attached to this sheet.

b - From AP-42 Section 1.6, Table 1.6-2, Dry wood-fired boilers. September 2003.

c - from AP-42 Section 10.6, Table 10.6.2-2, Rotary Dryer, direct wood-fired, softwood. February 2002.

d - from AP-42 Section 10.6, Table 10.6.2-3, Rotary Dryer, direct wood-fired, softwood, VOC as propane. February 2002.

Wood Burner-Fired Dryer Emissions

Pollutant	Potential to Emit		CAS No.
	lb/hr	TPY	
PM	10.0	43.98	-
PM10	10.0	43.97	-
SO2	1.1	4.9	-
NOx	9.6	42.0	-
CO	11.3	49.3	-
VOC	14.9	65.2	-
1,1,1-Trichloroethane	1.99E-04	8.70E-04	71-55-6
Acetaldehyde	0.22	0.94	75-07-0
Acetone	1.39	6.09	67-64-1
Acrolein	7.45E-02	3.26E-01	107-02-8
Benzene	1.64E-02	7.18E-02	71-43-2
Biphenyl	6.45E-04	2.83E-03	92-52-4
Bis-(2-ethylhexyl phthalate)	5.30E-03	2.32E-02	117-81-7
Bromomethane	4.63E-04	2.03E-03	74-83-9
Carbon Disulfide	2.98E-04	1.30E-03	75-15-0
Carbon Tetrachloride	1.99E-04	8.70E-04	56-23-5
Chloromethane	1.82E-03	7.97E-03	74-87-3
Cumene	1.14E-03	5.00E-03	98-82-8
Di-N-butyl Phthalate	3.81E-04	1.67E-03	84-74-2
Ethyl Benzene	6.29E-05	2.75E-04	100-41-4
Formaldehyde	0.41	1.81	50-00-0
Hydroquinone	9.93E-04	4.35E-03	123-31-9
m-,p-Xylene	9.10E-03	3.99E-02	1330-20-7
Methanol	0.23	1.01	67-56-1
Methyl Ethyl Ketone	8.11E-02	3.55E-01	78-93-3
Methyl Isobutyl Ketone	3.97E-02	1.74E-01	108-10-1
Methylene Chloride	1.04E-02	4.57E-02	75-09-2
n-Hexane	4.30E-04	1.88E-03	110-54-3
o-Xylene	2.32E-04	1.01E-03	95-47-6
Phenol	0.11	0.48	108-95-2
Propionaldehyde	5.30E-02	2.32E-01	123-38-6
Styrene	1.99E-03	8.70E-03	100-42-5
Toluene	3.48E-02	1.52E-01	108-88-3
Valeraldehyde	2.65E-02	1.16E-01	110-62-3